

### **Abstract of the Disclosure**

Preservative compositions using toxicologically acceptable ingredients, and employing a pH of 9.0 or above for at least part of the process, for reducing the initial population and controlling the growth of spoilage bacteria and human pathogens and for preventing unwanted color changes in fresh and processed produce, particularly mushrooms. Aqueous solutions of preservatives are prepared and applied in multiple stages to the mushrooms, by spraying or immersion. More specifically, disclosed is a method for preserving fresh and processed mushrooms, comprising the steps of: contacting the mushrooms with an antimicrobial solution having a pH of about 9.0 or above; and rinsing the mushrooms one or more times immediately after the contacting step with pH-neutralizing solutions having a pH sufficient to return the produce to its physiological pH. In a preferred embodiment, electrolyzed basic water is used in the first stage high-pH rinse step and electrolyzed acid water is used in the second stage neutralizing solution step. Tyrosinase inhibitors such as ascorbates, erythorbates, EDTA or calcium chloride are added to the neutralizing solutions to inhibit enzymatic browning.